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| 09/875,059 | 06/06/2001 | Ersine R. Barbour | ABMS-0122/B010420 | 7848 |

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EXAMINER

TERESINSKI, JOHN

ART UNIT PAPER NUMBER

2858

DATE MAILED: 07/18/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/875,059

Applicant(s)

BARBOUR ET AL.

Examiner

John Teresinski

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>4</u> | 6) <input type="checkbox"/> Other: |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 21 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The means of measuring a current value includes a current value and a period of time with out distinctly claiming the relationship of current determination.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 8,12,13,16-19,22-34,36 and 37 is rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,729,119 to Barbour.

Regarding claim 8, the Barbour reference discloses a power supply (column 6 lines 19-22), a microprocessor (column 4 lines 67-68), at least one actuator drive circuit connected to a power switching device adapted to provide a series of modulated current pulses to the magnetic actuator within the power switching device (column 11 lines 34-38).

Regarding claims 12 and 13, the Barbour reference discloses alternating and direct current power supplies (column 11 lines 5-7).

Regarding claim 16, the Barbour reference discloses a controller housing (column 4 line 10) and an energy storage capacitor for storing energy to a magnetic actuator (column 5 lines 5-10 and column 13 lines 29-35).

Regarding claims 17-19 and 22-23, the Barbour reference discloses applying a series of current pulses for a predetermined period of time (column 14 lines 15-16), comparing the impedance value to a threshold/predetermined value and determining the position and condition of a coil based on comparison (column 14 lines 19-24).

Regarding claims 24-27, the Barbour reference discloses applying voltage across a coil for a predetermined period of time (column 13 lines 62-67 and column 14 lines 1-12).

Regarding claims 28-31, the Barbour reference discloses a transistor having a first, second and third terminals (column 7 line 45), an inductor disposed between input power supply and transistor and an output terminal in electrical connection with the third terminal of the transistor (see figure 1b), a regulator operating in linear mode (column 6 lines 19-22) with an inductor acting as an oscillator (column 11 lines 34-37), at least one diode coupled between the output terminal and the capacitor (see figure 1b) and diodes that rectify the output of the capacitor (column 7 lines 35-38).

Regarding claims 32 and 33, the Barbour reference discloses a microprocessor have a pulse width modulator coupled between the second and third terminal of the transistor and pulsing of the second terminal of the transistor (column 10 lines 3-15).

Regarding claims 34, 36 and 37, the Barbour reference discloses determining based on the regulated output signal, whether to operate regulator in switching or linear mode (column 12 lines 33-37), a regulated output signal at a voltage of 15 VDC (column 11 lines 5-17) and rectifying power signal prior to outputting the regulated output signal at the second voltage (column 9 lines 29-37).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-7, 9-11, 14, 15, 20, 21 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,729,119 to Barbour in view of U.S. Patent No. 6,147,422 to Delson et al..

Regarding claim 1, the Barbour reference discloses a method for controlling a magnetic actuator within a power switching device (column 5 lines 35-40), a coil and armature (column 6 lines 64-65) and the method/means for inputting a power signal, applying a series of modulated current pulses through the coil of a magnetic actuator (column 11 lines 34-38). The Barbour reference does not disclose applying modulated current pulses in a first direction such that the actuator moves from a first to a second position. The Delson et al. reference discloses applying a modulated current pulses/modulated current signal in a first direction such that the actuator moves from a first to a second position (column 7 line 54, column 12 lines 65-67, column 13 lines 1-7). It would be obvious to one of ordinary skill in the art to include the application of

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modulated current supply pulses/modulated current signal in a first direction to move an actuator from a first position to a second position as taught by the Delsom et al. reference into the Barbour reference for the purpose controlling an actuator within a power switching device.

Regarding claims 2 and 3, the Barbour reference does not disclose current pulses through the coil in a second direction for the actuator to move from a second to a third position or the third position being the first position. The Delsom et al. reference discloses applying modulated current pulses in a second direction to the coil of a magnetic actuator and a third position as a first position (column 10 lines 38-42). It would be obvious to one of ordinary skill in the art to include applying current to the coil in a second direction and the third position as the first position as taught by the Delsom et al. reference in to the Barbour reference for the purpose of moving the actuator in a reverse direction and returning the actuator to an original location.

Regarding claims 4 and 5, the Barbour reference discloses measuring a current value in a coil while pulsing a coil (column 12 lines 1-6) and the continuation of current pulses to the coil of an actuator (column 10 lines 61-67) and comparing the current level with a threshold value (column 1 lines 50-52).

Regarding claims 6, 7, 9 and 10, the Barbour reference discloses tuning the series of modulated current pulses (column 14 lines 36-51). The Barbour reference does not disclose changing the amplitude of the current pulse. The Delsom et al. reference discloses changing the amplitude of a current pulse and low, medium and high/multiple settings (column 10 lines 58-61). It would be obvious to one of ordinary skill in the art to include the amplitude adjustment as taught by the Delsom et al. reference into the Barbour reference for the purpose of supplying proper current to the coil.

Regarding claim 11 the Barbour reference discloses recloser/reset function (column 13 lines 53-57).

Regarding claim 14, the Barbour reference does not disclose three actuator control circuits. The Delsom et al. reference discloses the use of three actuator control circuits (column 9 lines 55-64). It would be obvious to one of ordinary skill in the art to include the a three actuator control circuits as taught by the Delsom et al. reference into the Barbour reference for the purpose of controlling three actuators.

Regarding claims 15 and 35, the Barbour reference discloses a programmable power supply with a range of 12 to 200 VDC (column 11 lines 5-7). The Barbour reference does not include the range of 200-250 VDC. It would be obvious to one of ordinary skill in the art to increase the power supply range for the purpose of providing more power.

Regarding claims 20 and 21, the Barbour reference discloses a predetermined interval time of seven milliseconds and performing four measurements during time interval (column 14 lines 14-22). The Barbour reference does not disclose a measurement time of about 230 microseconds. It would be obvious to one of ordinary skill in the art to include a measurement time of about 230 microseconds as disclosed by the Barbour reference.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following patents are cited to further show the state of art with respect to control of magnetically actuated power switching devices:

U.S. Patent No. 6,208,497 to Seale et al. discloses control of electromagnetic actuators.

U.S. Patent No. 5,907,467 to Barbour discloses a pulsing of a solenoid.

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U.S. Patent No. 5,808,471 to Rooke et al. discloses a method and system for solenoid operation.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Teresinski whose telephone number is (703) 305-4746.

The examiner can normally be reached on M-F 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, N. Le can be reached on (703) 308-0750. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872 9319 for regular communications and (703) 872 9318 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

JT

July 12, 2002



N. Le
Supervisory Patent Examiner
Technology Center 2800